

Cutter

SOL LUX Pendants *and* **MAZDA C** Lamps

Replace your old Arc Lamps

*Save Electrical Energy,
Increase Illumination
and Conserve the
Nation's Resources*



CUTTER MAST ARM
With "Safety First" Cut-Out
Pulley Supporting Cutter
Sol-lux Pendant

GEORGE CUTTER COMPANY

SOUTH BEND, INDIANA

Chicago
Los Angeles

Detroit
San Francisco

New York
Seattle



Fig. 1—Chicago Type Pendant

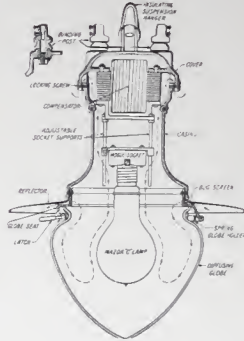


Fig. 2—Sectional View of Pendant



Fig. 3—Pendant with Globe Lowered

Cutter "Sol-lux" Pendants and Mazda "C" Lamps Save the City of Chicago \$168,000 Annually

The steady increase in the cost of material and supplies found the Department of Gas and Electricity of the City of Chicago with an increasing street-lighting load and a decreasing income per unit operated. A study was made to determine some means by which the operation and maintenance costs might be reduced and the service maintained or improved.

One part of the system consisted of 10,000 10-ampere Type "W" flame carbon arc lamps. These lamps showed a marked tendency to increase in operating and maintenance expense. When this part of the system was compared with another part consisting of 15,000 600-candlepower Mazda "C" lamps, it was found that

(1) By changing the 10,000 arc lamps to 10-ampere Mazda "C" lamps consuming only 333 watts each, a saving of \$168,000 annually would be effected.

(2) The illumination given by the Mazda "C" lamps would compare favorably with the old arc lamps.

(3) The difference between the cost of the new fixtures and the scrap value of the old arc lamps would be saved in 21½ days.

Replace Arc Lamps with "Sol-lux" Pendants

Copper and brass, used largely in the manufacture of arc lamps, command a high price today. Such materials are badly needed in our industries. Often the arc lamps can be

sold as scrap at a price nearly equal to the cost of new fixtures for Mazda "C" lamps. In the case of the Chicago installation, the difference was taken out of the operating funds. Considering the high cost of operating arc lamps during the first part of the year as a direct loss, there was still sufficient saving, after the installation had been completed, to absorb the loss, pay for the new system and leave a credit balance at the end of the current year. For every year thereafter the city will save \$168,000, or \$16.80 per fixture per year.

Every central station and municipal lighting plant should change from arc lamps to Cutter "Sol-lux" Pendants, using Mazda "C" lamps. The cost of generating electrical energy is rapidly increasing; coal and all supplies are obtained only with difficulty and at high prices. The opportunity to conserve the nation's resources and increase the illumination service and the income per unit operated is offered to all. A table showing savings effected by use of Cutter "Sol-lux" Pendants is given on the next page. Estimates in detail will be made by our Engineering Department upon receipt of full particulars.



Fig. 4—Chicago Type Pendant—Showing Regent Film Socket on Adjustable Support



Fig. 5—Chicago Type Pendant—Showing Socket and Support for Mazda "C" Lamps

TABLE OF "SOL-LUX" SAVINGS

	Enclosed Arc Lamps		Magnetite Lamps		"SOL-LUX" PENDANTS				
	6.6	7.5	4	6.6	250 c. p.	400 c. p.	400 c. p.	600 c. p.	1000 c. p.
Amperes in line.....	425	490	310	510	6.6	6.6	15	6.6	20
Watts per lamp.....	16	21	6	16	155	244	229	363	543
Line loss in watts.....	441	511	316	326	16	16	16	16	16
Watts at regulator.....	460	532	351	358	171	260	245	384	559
Efficiency of auxiliary apparatus.....	65	65	64	64	96	96	96	96	96
Watts at station.....	708	818	548	912	271	271	255	400	582
Power-factor of system.....					91	91	91	87	87
Volt-amperes at station.....					196	298	280	460	507
Cost of central-station apparatus per KVA.....	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00	\$75.00
Cost of central-station apparatus per lamp.....	53.10	61.40	41.20	68.50	11.70	22.35	21.00	34.30	38.00
Cost of constant-current regulator.....	490.00	490.00	750.00	1000.00	350.00	350.00	350.00	350.00	350.00
Cost of rectifier, panelboards, etc.....	75.00	75.00	420.00	475.00	100.00	100.00	100.00	100.00	100.00
Total cost of regulating equipment.....	565.00	565.00	1170.00	1175.00	450.00	450.00	450.00	450.00	450.00
Capacity in lamps.....	50	50	50	50	115	78	82	52	35
Cost of regulating equipment per lamp.....	\$11.30	\$11.30	\$23.10	\$29.50	\$3.90	\$3.80	\$3.50	\$8.65	\$12.80
Cost of arc lamp or fixture.....	22.00	22.00	28.00	28.00	10.30	10.50	15.00	10.50	17.00
Combined cost of lamp and station equipment.....	33.30	33.30	51.10	57.50	14.40	16.30	20.50	19.15	29.80
FIXED CHARGES ON EQUIPMENT									
Interest and depreciation on central station (12.5%).....	\$ 3.75	\$ 7.68	\$ 5.15	\$ 8.56	\$ 1.84	\$ 2.80	\$ 2.62	\$ 4.31	\$ 4.75
Interest and taxes on series equipment (7.5%).....	2.50	2.50	3.86	4.32	1.08	1.24	1.51	1.14	2.21
Depreciation on series equipment (12.5%).....	4.17	4.17	6.42	7.18	1.80	2.04	2.56	2.40	3.73
Total.....	\$12.42	\$14.35	\$15.43	\$20.06	\$ 4.72	\$ 6.08	\$ 6.72	\$ 8.15	\$10.72
MAINTENANCE									
Electrodes or lamps (\$1,200 contract).....	\$ 1.00	\$ 1.00	\$ 1.50	\$ 4.00	\$ 5.14	\$ 8.76	\$ 8.76	\$10.95	\$13.15
Glassware.....	1.60	1.60	.80	.80	.80	.80	.80	.80	.80
Extra parts and repairs.....	1.50	1.50	.75	.75	.75	.75	.75	.75	.75
Trimming and cleaning.....	2.80	3.00	1.25	2.00	.50	.50	.50	.50	.50
Rectifier tubes.....			2.00	3.00					
Total.....	\$ 6.90	\$ 7.10	\$ 6.30	\$10.55	\$ 6.44	\$10.06	\$10.06	\$12.25	\$14.45
SUMMATION									
Fixed charges.....	\$12.42	\$14.35	\$15.43	\$20.06	\$ 4.72	\$ 6.08	\$ 6.72	\$ 8.15	\$10.72
Maintenance.....	6.90	7.10	6.30	10.55	6.44	10.06	10.06	12.25	14.45
Energy of (4,000 hours at 1c per KWH).....	18.10	21.28	11.04	23.36	7.12	10.84	10.20	16.00	23.28
Total.....	\$37.72	\$42.73	\$35.77	\$53.97	\$18.28	\$26.98	\$26.98	\$36.40	\$48.45
Mean lower hemispherical candlepower.....	230	270	426	1195	270	430	430	650	1080
Cost per mean lower hemispherical candlepower.....	\$0.164	\$0.158	\$0.084	\$0.0452	\$0.0677	\$0.0627	\$0.0627	\$0.056	\$0.045



Fig. 6—Chicago Type Pendant with "Sol-lux" Diffuser

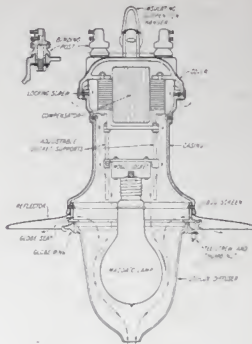


Fig. 7—Sectional View of Chicago Type Pendant



Fig. 8—Chicago Type Pendant with Skirted Refractor

Price List of Cutter (Chicago Type) Sol-lux Pendants

Made of cast iron of light but substantial construction, heavily galvanized and finished in black enamel. Equipped with 20-inch porcelain enameled reflector.

Trade No.	Description	Shipping Weight, Lbs., Each	List Price
22236	With Mogul Multiple Socket, Pear-shaped Globe	42	\$14.45
22237	With Mogul Multiple Socket, Sol-lux Diffuser	40	13.70
22238	With Mogul Multiple Socket, Holophane Skirted Refractor	46	18.35
22239	With Mogul Multiple Socket, Holophane Bowl Refractor	46	18.85
22240	With Mogul Multiple Socket, Holophane Band Refractor	45	18.35
22241	With Regent Film Series Socket, Pear-shaped Globe	42	15.25
22242	With Regent Film Series Socket, Sol-lux Diffuser	40	14.50
22243	With Regent Film Series Socket, Holophane Skirted Refractor	46	19.15
22244	With Regent Film Series Socket, Holophane Bowl Refractor	46	19.65
22245	With Regent Film Series Socket, Holophane Band Refractor	45	19.15

(Compensators designed for 60-cycle circuits)

Compensators designed for 60 cycle circuits, and either 6.6 or 7.5 ampere primary. Compensators for 600 c. p. 20 amp. lamps have extra taps for 400 c. p. 15 amp. lamps. Compensators for 1000 c. p. 20 amp. lamps have extra taps for 600 c. p. 20 amp. lamps. In ordering specify connections for both line and lamp.

22246	With Compensator for 400 c. p. Lamp, Mogul Socket and Pear-shaped Globe	49	\$23.30
22247	With Compensator for 400 c. p. Lamp, Mogul Socket and Sol-lux Diffuser	47	22.40
22248	With Compensator for 400 c. p. Lamp, Mogul Socket and Holophane Skirted Refractor	53	25.50
22249	With Compensator for 400 c. p. Lamp, Mogul Socket and Holophane Bowl Refractor	53	26.00
22250	With Compensator for 400 c. p. Lamp, Mogul Socket and Holophane Band Refractor	52	25.50
22251	With Compensator for 600 c. p. Lamp, Mogul Socket and Pear-shaped Globe	51	26.40
22252	With Compensator for 600 c. p. Lamp, Mogul Socket and Sol-lux Diffuser	49	25.50
22253	With Compensator for 600 c. p. Lamp, Mogul Socket and Holophane Skirted Refractor	55	29.25
22254	With Compensator for 600 c. p. Lamp, Mogul Socket and Holophane Bowl Refractor	55	29.25
22255	With Compensator for 600 c. p. Lamp, Mogul Socket and Holophane Band Refractor	53	28.75
22256	With Compensator for 1000 c. p. Lamp, Mogul Socket and Pear-shaped Globe	54	29.90
22257	With Compensator for 1000 c. p. Lamp, Mogul Socket and Sol-lux Diffuser	52	29.10
22258	With Compensator for 1000 c. p. Lamp, Mogul Socket and Holophane Skirted Refractor	58	32.25
22259	With Compensator for 1000 c. p. Lamp, Mogul Socket and Holophane Bowl Refractor	58	32.75
22260	With Compensator for 1000 c. p. Lamp, Mogul Socket and Holophane Band Refractor	57	32.25

Standard package 10—Schedule "G" discounts

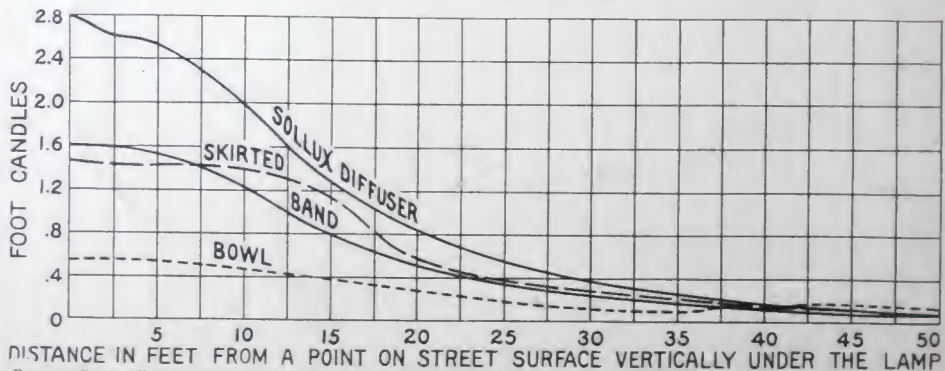


Fig. 19—Curves Showing Foot-Candle Intensities on Street Surface at Given Distances from Lamp Fixtures with 600-Candle-power Mazda "C" Lamp—Mounting Height, 16 Feet.